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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)				
	09/877,410	EWELL ET AL.				
Office Action Summary	Examiner	Art Unit				
	Melvin Marcelo	2662				
The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply						
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.  - Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.  - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).						
Status						
1) Responsive to communication(s) filed on <u>06 June 2005</u> .  a) This action is <b>FINAL</b> .  2b) This action is non-final.  3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.						
Disposition of Claims						
4) ⊠ Claim(s) 1-3,5,6,8,10-29,31 and 34 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration.  5) ⊠ Claim(s) 1-3,5,8 and 10-14 is/are allowed.  6) ⊠ Claim(s) 6,15-17,20-29,31 and 34 is/are rejected.  7) ⊠ Claim(s) 18 and 19 is/are objected to.  8) □ Claim(s) are subject to restriction and/or election requirement.						
Application Papers						
9) The specification is objected to by the Exam 10) The drawing(s) filed on 06 June 2005 is/are: Applicant may not request that any objection to the Replacement drawing sheet(s) including the containing the oath or declaration is objected to by the	a)⊠ accepted or b)⊡ objected to lite drawing(s) be held in abeyance. See rection is required if the drawing(s) is obj	ected to. See 37 CFR 1.121(d).				
Priority under 35 U.S.C. § 119						
12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  a) All b) Some * c) None of:  1. Certified copies of the priority documents have been received.  2. Certified copies of the priority documents have been received in Application No  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  * See the attached detailed Office action for a list of the certified copies not received.						
Attachment(s)  1) Notice of References Cited (PTO-892)  2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/Paper No(s)/Mail Date	4) Interview Summary (Paper No(s)/Mail Da 08) 5) Notice of Informal Pa					

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#### **DETAILED ACTION**

#### Response to Amendment

1. The indicated allowability of claims 6, 15-17, 20-29, 31 and 34 are withdrawn in view of the reference(s) to Kaplan et al. (US 6,680,904 B1). Rejections based on the newly cited reference(s) follow.

## Claim Rejections - 35 USC § 112

- The following is a quotation of the second paragraph of 35 U.S.C. 112:
   The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
- 3. Claims 22-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 is confusing. In particular, "step (e)" recites repeating "step (d)" for the condition that "another expansion unit exists in the upstream path"; however, "step (d)" is conditional to "another expansion unit does not exist in the downstream path." These two conditions conflict since another expansion unit in the upstream path will result in that particular other expansion unit in the upstream having another expansion unit in the downstream path. It would appear that in order to complete the loop of generating and forwarding upstream data at each expansion unit recited in step (e), then step (d) would have to be repeated without its conditional recitation and further step (e) would also be repeated for each additional expansion unit in the upstream (i.e. repeating both step (d) unconditionally and step (e) for the other expansion unit).

Note: in claim 27, "step (f)" repeats "step (f)" in order to complete the upstream data loop to the master unit, but the additional expansion units in the upstream path do not repeat step (d)

and therefor, the recited limitation only forwards upstream data, rather than generate additional upstream data at each another expansion unit.

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Claim 34 has a similar problem to claim 22 in that step "(b)" repeats step "(a)," wherein the conditional statements conflict.

## Claim Objections

4. Claim 24 is objected to because of the following informalities: claim 24, line 2, "small form-factor" is misspelled. Appropriate correction is required.

## Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

6. Claims 6, 22, 23, 27, 31 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Kaplan et al. (US 6,680,904 B1).

Kaplan teaches a DSLAM with the expansion units connected in a daisy-chain to the master unit (Figure 3 and column 6, lines 13-15). The data traffic (downstream and upstream) are ATM cells (column 1, lines 42-45 and column 10, lines 35-44) such that the framing pattern

for synchronizing contained in the downstream data is inherent in order for expansion units to be able to extracting the cells by recognizing the ATM header and payload. This is consistent with Applicant's framing pattern which includes the ATM cell structure (see Table 1 of the specification). With respect to the claims below, references to the prior art appear in parenthesis.

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Claims

6. (Currently Amended) A method for expanding the delivery of ATM-compatible services (Kaplan, Figure 3 and column 6, lines 12-37), comprising:

processing at a master unit a plurality of ATM cells for communication with an ATMcompatible network (ATM network, column 6, lines 13-15) and for communication with local ATM-compatible interfaces at the master unit (Local ports at master, column 9, lines 23-37) and an expansion set of remote ATM-compatible interfaces at an expansion unit coupled to the master unit via an expansion link (Expansion set of remote ATM-compatible interfaces corresponds to the Subscriber Ports 28 in the expansion Slave Unit 34 in Figure 4);

communicating the ATM cells in the downstream direction from the master unit to the expansion unit via the expansion link for delivery to the remote ATM-compatible interfaces at the expansion unit, wherein a downstream path comprises one or more expansion units (Expansion link 38 providing the downstream path to the plurality of expansion slave units 34 in Figure 3), and the step of communicating the ATM cells in the downstream direction comprises the steps of :

- (a) sending the downstream data comprising the ATM cells in the downstream direction from the master unit to the expansion unit via the expansion link (Figure 6 and column 8, lines 53-64);
  - (b) at the expansion unit, completing a synchronization of the expansion unit

to a framing pattern contained in the downstream data and extracting the ATM cells from the downstream data intended for delivery to the remote ATM-compatible interfaces of the expansion unit (Slave unit extracts packets/cells with local address (column 7, lines 28-58), wherein the synchronization to a framing pattern is inherent for ATM systems since the start of the cell header must be known in order to be able to read and determine the destination address); and

(c) in response to determining that another expansion unit exists in the downstream path, then forwarding the downstream data from the expansion unit to the other expansion unit and repeating step (b) for the other expansion unit (Current slave unit forwards downstream data to next slave unit, column 7, lines 49-52);

communicating the ATM cells in an upstream direction from the expansion unit to the master unit via the expansion link for processing by the master unit (Upstream from slave to master unit, column 7, line 59 to column 8, line 8).

- 22. (Previously Presented) A method for delivering an expanded set of telecommunications services with a master unit and one or more expansion units, the master unit coupled to one of the expansion units via an expansion link, each pair of expansion units coupled via another expansion link, the master unit operative to deliver the telecommunications services to a fixed number of subscribers, each expansion unit operative to deliver the telecommunications services to an expanded set of subscribers other than those serviced by the master unit (Figure 3, master unit coupled to expansion slave units via expansion link 38 for delivering services to fixed number of subscribers 28 in each slave unit), the method comprising the steps of:
- (a) generating downstream data associated with the telecommunications services for transmission in the downstream direction from the master unit to the expansion unit coupled to

the master unit via the expansion link (Downstream direction, column 7, lines 28-58);

- (b) at the expansion unit, completing a synchronization of the expansion unit to a framing pattern contained in the downstream data and extracting information from the downstream data intended for delivery to the expansion unit (Slave unit extracts packets/cells with local address (column 7, lines 28-58), wherein the synchronization to a framing pattern is inherent for ATM systems since the start of the cell header must be known in order to be able to read and determine the destination address),
- (c) in the event that another expansion unit exists in the downstream path, then forwarding the downstream data from the expansion unit to the other expansion unit and repeating step (b) for the other expansion unit (Downstream data forwarded to next slave unit, column 7, lines 49-52);
- (d) in the event that another expansion unit does not exist in the downstream path, then generating upstream data associated with the telecommunications services for transmission in the upstream path from the expansion unit to the master unit, the expansion unit operable to insert information into the upstream data for delivery to the master unit (Upstream data generated at the slave unit, column 8, lines 4-8); and
- (e) in the event that another expansion unit exists in the upstream path then forwarding the upstream data from the expansion unit to the other expansion unit and repeating step (d) for the other expansion unit, otherwise completing the loop of upstream data toward the master unit (Upstream data generated at another slave unit, column 7, line 59 to column 8, line 3).
  - 23. (Previously Presented) The method of Claim 22, wherein the telecommunication

services comprise one of Asynchronous Transport Mode (ATM), Multiple Protocol Label
Switching (MPLS) and Frame Relay-compatible services (ATM service, column 6, lines 1315).

- 27. (Previously Presented) A method for delivering an expanded set of ATM-compatible services with a master unit and one or more expansion units, the master unit coupled to one of the expansion units via an expansion link, each pair of expansion units coupled via another expansion link, the master unit operative to deliver the ATM-compatible services to a fixed number of subscribers, each expansion unit operative to deliver the ATM-compatible services to an expanded set of subscribers other than those serviced by the master unit (Figure 3, master unit coupled to expansion slave units via expansion link 38 for delivering services to fixed number of subscribers 28 in each slave unit), the method comprising the steps of:
- (a) processing at the master unit a plurality of ATM cells for communication with an ATM-compatible network and for communication with local ATM-compatible interfaces at the master unit (Local ports at master, column 9, lines 23-37) and an expansion set of remote ATM-compatible interfaces at each expansion unit (Remote subscriber ports 28 in Figure 3) coupled to the master unit via an expansion link;
- (b) communicating downstream data comprising ATM cells in the downstream direction from the master unit to the expansion unit via the expansion link for delivery to the remote ATM-compatible interfaces at the expansion unit (Downstream direction, column 7, lines 28-58);
- (c) at the expansion unit, completing a synchronization of the expansion unit to a framing pattern contained in the downstream data and extracting the ATM cells from the downstream data intended for delivery to the remote ATM-compatible interfaces of the

expansion unit (Slave unit extracts packets/cells with local address (column 7, lines 28-58), wherein the synchronization to a framing pattern is inherent for ATM systems since the start of the cell header must be known in order to be able to read and determine the destination address),

- (d) in the event that another expansion unit exists in the downstream path, then forwarding the downstream data from the expansion unit to the other expansion unit and repeating step (c) for the other expansion unit (Downstream data forwarded to next slave unit, column 7, lines 49-52);
- (e) in the event that another expansion unit does not exist in the downstream path, then generating upstream data comprising ATM cells associated with the ATM-compatible services for transmission in the upstream path from the expansion unit to the master unit, the expansion unit operable to insert the ATM cells into the upstream data for delivery to the master unit (Upstream data generated at the slave unit, column 8, lines 4-8); and
- (f) in the event that another expansion unit exists in the upstream path, then forwarding the upstream data from the expansion unit to the other expansion unit and repeating step (f) for the other expansion unit, otherwise completing the loop of upstream data to the master unit (Upstream data generated at another slave unit, column 7, line 59 to column 8, line 3).
- 31. (Previously Presented) The method of Claim 6, wherein an upstream path comprises one or more expansion units, and the step of communicating the ATM cells in the upstream direction comprises the steps of:
- (a) in response to determining that another expansion unit does not exist in the downstream path, sending upstream data comprising ATM cells associated with the ATM-compatible services for transmission in the upstream path from the expansion unit to the master

unit, the expansion unit operable to insert the ATM cells into the upstream data for delivery to the master unit (Upstream data generated at the slave unit, column 8, lines 4-8); and

(b) in response to determining that another expansion unit exists in the upstream path, the forwarding the upstream data from the expansion unit to the other expansion unit and repeating step (a) for the other expansion unit, otherwise completing the loop of upstream data to the master unit (Upstream data generated at another slave unit, column 7, line 59 to column 8, line 3).

34. (New) A method for expanding the delivery of ATM-compatible services, comprising:

processing at a master unit a plurality of ATM cells for communication with an ATM-compatible network and for communication with local ATM-compatible interfaces at the master unit and an expansion set of remote ATM-compatible interfaces at an expansion unit coupled to the master unit via an expansion link (Figure 3, master unit coupled to expansion slave units via expansion link 38 for delivering services to fixed number of subscribers 28 in each slave unit);

communicating the ATM cells in the downstream direction from the master unit to the expansion unit via the expansion link for delivery to the remote ATM-compatible interfaces at the expansion unit (Downstream direction, column 7, lines 28-58);

communicating the ATM cells in an upstream direction from the expansion unit to the master unit via the expansion link for processing by the master unit, wherein an upstream path comprises one or more expansion units, and the step of communicating the ATM cells in the upstream direction comprises the steps of:

(a) in response to determining that another expansion unit does not exist in the

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downstream path, sending upstream data comprising the ATM cells associated with the ATM-compatible services for transmission in the upstream path from the expansion unit to the master unit, the expansion unit operable to insert the ATM cells into the upstream data for delivery to the master unit (Upstream data generated at the slave unit, column 8, lines 4-8); and

(b) in response to determining that another expansion unit exists in the upstream path, the forwarding the upstream data from the expansion unit to the other expansion unit and repeating step (a) for the other expansion unit, otherwise completing the loop of upstream data to the master unit (Upstream data generated at another slave unit, column 7, line 59 to column 8, line 3).

#### Claim Rejections - 35 USC § 103

- 7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
  - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 8. Claims 15-17, 20, 21, 24-26, 28 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kaplan et al. in view of applicant's admitted prior art.

Kaplan teaches a multi-shelf access DSLAM for expanding the number of subscribers to an ATM network (column 6, lines 12-15). Kaplan does not teach a DLC system implementing the DSLAM. However, Kaplan does suggest that their DSLAM may be configured over substantially any suitable communications infrastructure (column 6, lines 15-20). Further, applicant admits that it is well known in the prior art to implement a DSLAM into a DLC cabinet system (specification, bottom of page 1 to top of page 2). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Kaplan's DSLAM into a DLC system since Kaplan suggests a configuration over suitable

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communications infrastructure and the DLC system is a known infrastructure that can house a DSLAM. With respect to the claims below, references to the prior art appear in parenthesis.

Claims

15. (Previously Presented) In an expandable system for delivering ATM-compatible services via an expansion unit operable to expand the delivery of ATM-compatible services to an additional set of subscribers other than subscribers serviced by a predetermined number of local ATM-compatible interfaces available at a Digital Line Carrier (DLC) system (Obvious to implement Kaplan's DSLAM into the admitted prior art DLC system), the expansion unit (Kaplan's slave unit, Figure 4 and column 7, lines 28-58) comprising:

a plurality of remote ATM-compatible interface for communicating ATM cells associated with the ATM-compatible services with the additional set of subscribers (Subscriber ports 28); an input expansion port for coupling to an expansion link to establish a communication link with the DLC system (PHY 40 coupling to master unit); and

an expansion function (**Pre-switch 60**), coupled to the input expansion port, for communicating the ATM cells in the upstream and downstream directions via the input expansion port and for communicating the ATM cells with the remote ATM-compatible interfaces.

16. (Previously Presented) The expansion unit of Claim 15, wherein the expansion unit further comprises an output expansion port (PHY 52) for connecting the expansion unit to another expansion unit (Downstream Slaves 34 in Figure 3) via an expansion link, the expansion function coupled to the output expansion port for communicating the ATM cells in the upstream and downstream directions via the output expansion port and for communicating the ATM cells with the remote ATM-compatible interfaces (Column 7, lines 28-58).

17. (Previously Presented) The expansion unit of Claim 15, wherein the input port of the expansion unit is coupled to a master unit located at the DLC system (PHY 40), the master unit (Figure 6) comprising:

a predetermined number of the local ATM-compatible interfaces, each operable to communicate the ATM-compatible services comprising ATM cells with a corresponding subscriber (Local ports, column 9, lines 23-37);

an expansion function (Pre-switch 92), coupled to the local ATM-compatible interfaces (Pre-switch functions to route packets to local ports based on the pre-switch address PSA, column 7, lines 34-40) and to an expansion port (Slave ports 94, 96, 98), for communicating the ATM cells via the expansion port and for communicating the ATM cells with the local ATM-compatible interfaces; and

an ATM controller, coupled to an ATM-compatible network, to the local ATM-compatible interfaces, and to the expansion function, operable to process the ATM cells for distribution via the ATM-compatible network, the local ATM-compatible interfaces and the expansion port (Kaplan does not show an ATM controller or any controller, but it would have been obvious to provide a controller to provide control functions for the circuits in the master unit since the various circuits must be coordinated in order to function properly. Specifically, the controller must have ATM functions since the packets are ATM cells (column 10, lines 35-44)).

20. (Previously Presented) A method for expanding the delivery of telecommunication services via a Digital Line Carrier (DLC) system (Obvious to implement Kaplan's DSLAM into the admitted prior art DLC system), comprising:

providing a master unit at the DLC system (Figure 6), the master unit coupled to a wide area network (WAN) (Network Interface 24) and operable to process telecommunication

service signals for communication with the WAN and with a fixed number of telecommunication service interfaces (Local ports, column 9, lines 23-37) at the master unit, the telecommunication service interfaces associated with a corresponding set of subscribers for the telecommunications services;

in the event that the number of subscribers desiring delivery of the telecommunication services exceeds the fixed number of telecommunications service interfaces at the master unit, then coupling an expansion unit to the master unit via an expansion link, the expansion unit comprising an expansion set of telecommunication service interfaces and operable to transmit telecommunication service signals in the upstream direction via the expansion link for processing by the master unit and to receive telecommunication service signals in the downstream direction from the master unit via the expansion link for delivery to the expansion set of telecommunication service interfaces (Expansion slave unit 34 in Figure 3).

21. (Previously Presented) The system of Claim 20, wherein, in the event that the number of subscribers desiring delivery of the telecommunication services exceeds the fixed number of telecommunications service interfaces at the master unit and the expansion set of telecommunication service interfaces available at the expansion unit, then coupling a second expansion unit to the expansion unit via a second expansion link, the second expansion unit comprising a second expansion set of telecommunication service interfaces and operable to transmit telecommunication service signals in the upstream direction via a combination of the expansion unit and the pair of expansion links for processing by the master unit and to receive telecommunication service signals in the downstream direction from the master unit via a combination of the expansion unit and the pair of expansion links for delivery to the second expansion set of telecommunication service interfaces (Additional slave units 34 in Figure 3).

24. (Previously Presented) The method of Claim 22, wherein the master unit and each expansion unit comprise separate small form-factor assemblies (Kaplan's DSLAM is installed on shelves in an electronics rack, column 1, lines 48-51), each capable of installation in different locations within a cabinet housing a Digital Line Carrier (DLC) system (Applicant admits that it is well known to house a DSLAM in a DLC cabinet).

25. (Previously Presented) The method of Claim 22, wherein the telecommunications services comprise ATM-compatible services, and the downstream data and the upstream data comprise ATM cells, input/output (I/O) signals and a clock reference signal (It would have been obvious to include I/O signals and clock reference signals in the downstream and upstream data since Kaplan suggests that their DSLAM may be configured in other types of suitable communications infrastructures (column 6, lines 15-20). For example, applicant's

admitted prior art infrastructure Figure 1A includes I/O signals (specification, page 2)).

26. (Previously Presented) The method of Claim 22, wherein the downstream data and the upstream data are formatted to comply with the Low Voltage Differential Signal (LVDS) serial interface for distribution between the master unit and each expansion unit via each expansion link (It would have been obvious for Kaplan's system to conform to standard interfaces since Kaplan suggests their DSLAM's implementation in known infrastructures).

28. (Previously Presented) The method of Claim 27, wherein the downstream data and the upstream data further comprise input/output (I/O) signals and a clock reference signal (It would have been obvious to include I/O signals and clock reference signals in the downstream and upstream data since Kaplan suggests that their DSLAM may be configured in other types of suitable communications infrastructures (column 6, lines 15-20). For example, applicant's admitted prior art infrastructure Figure 1A includes I/O signals (specification, page 2)).

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29. (Previously Presented) The method of Claim 27, wherein the downstream data and the upstream data are formatted to comply with the Low Voltage Differential Signal (LVDS) serial interface for distribution between the master unit and each expansion unit via each expansion link (It would have been obvious for Kaplan's system to conform to standard interfaces since Kaplan suggests their DSLAM's implementation in known infrastructures).

## Allowable Subject Matter

- 9. Claims 1-3, 5, 8 and 10-14 are allowed.
- 10. Claims 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
- 11. The following is a statement of reasons for the indication of allowable subject matter: with respect to claims 1, 8 and 18, the prior art of record fails to anticipate or make obvious the POTS interface associated with the DLC system. With respect to claim 19, the prior art of record fails to anticipate or make obvious the additional features of the ATM controller associated with controlling the circuits in the master unit.

#### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Marcelo whose telephone number is 571-272-3125. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on 571-272-3088. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Melvin Marcelo Primary Examiner Art Unit 2662

August 23, 2005